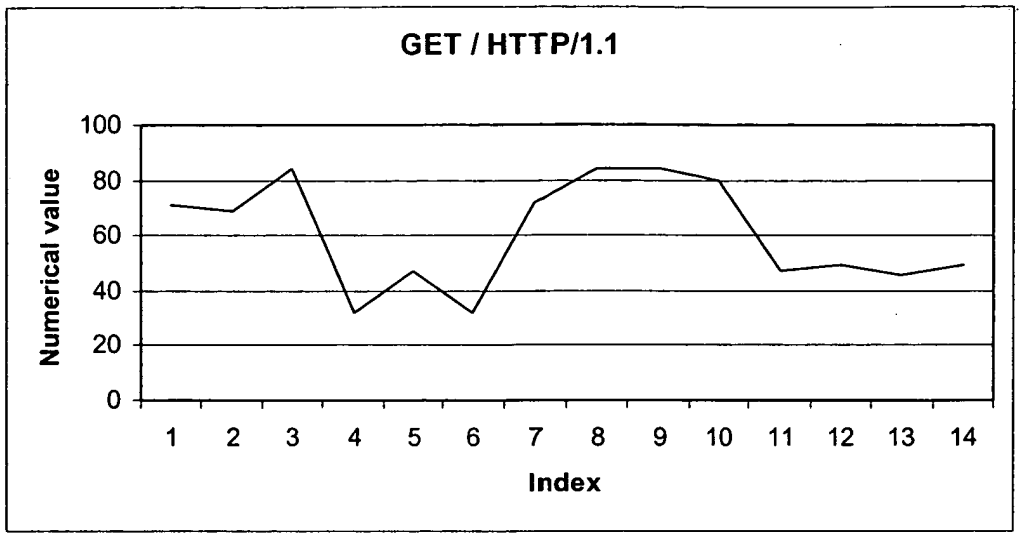

Figure 1A

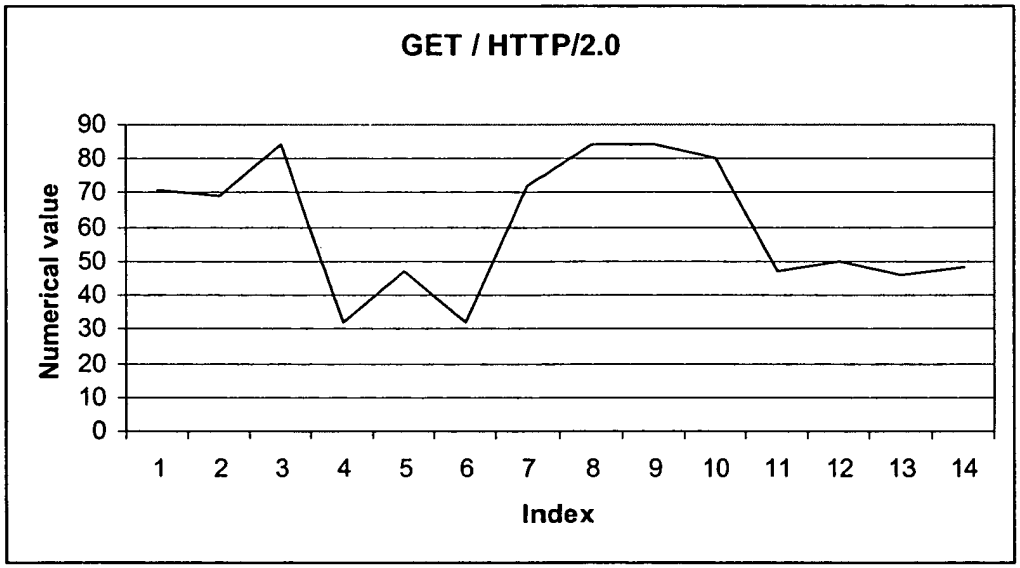

Figure 1B

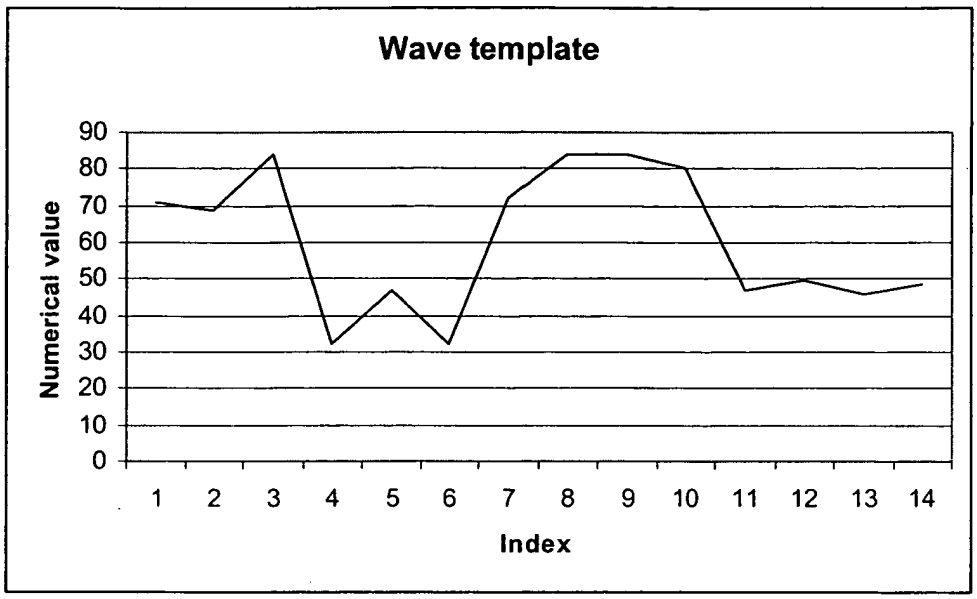
Wave template
Numerical value
90
80
70
60
50
40
30
20
10
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
Index

Figure 1C

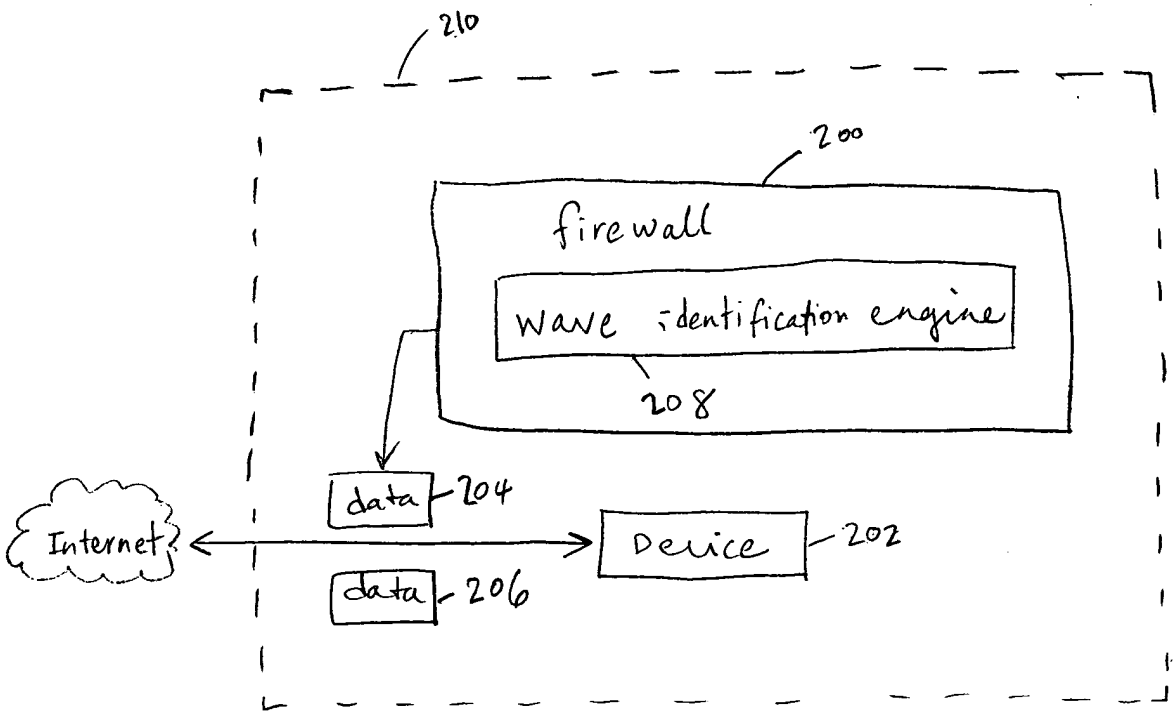
210
200
firewall
wave identification engine
208
data
204
Internet
Device
202
data
206

Figure 2A

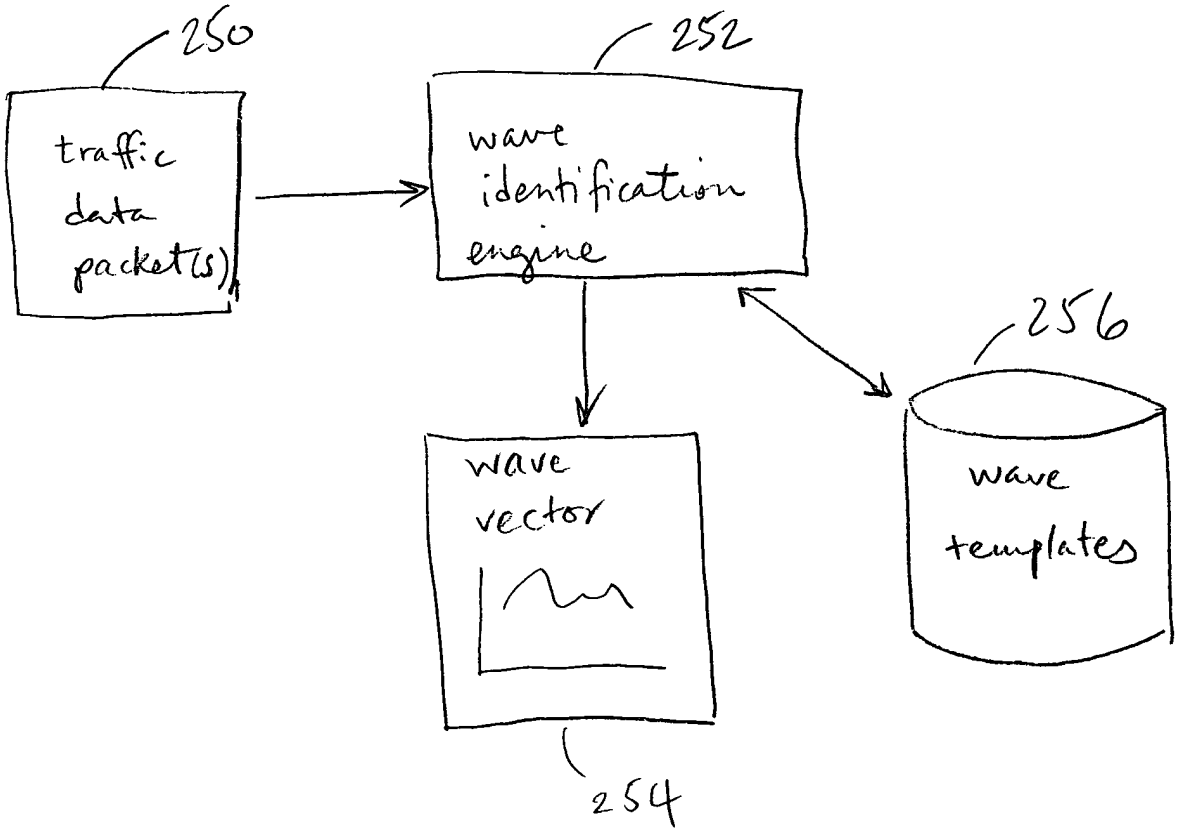
250
traffic data packet(s)
252
wave identification engine
256
wave templates
wave vector
254

Figure 2B

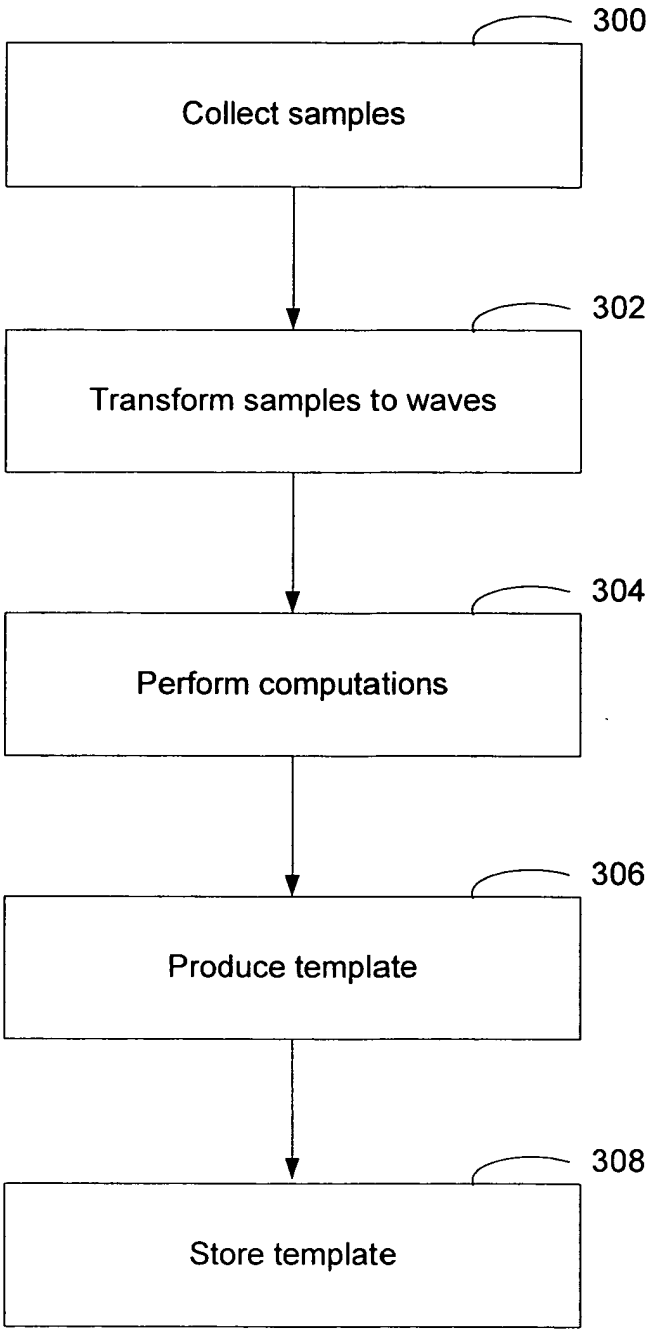
300
Collect samples
302
Transform samples to waves
304
Perform computations
306
Produce template
308
Store template

Figure 3

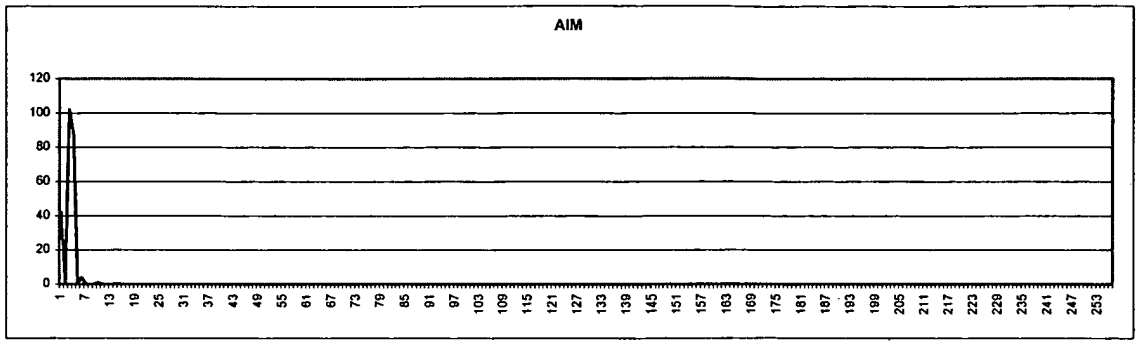

Figure 4A

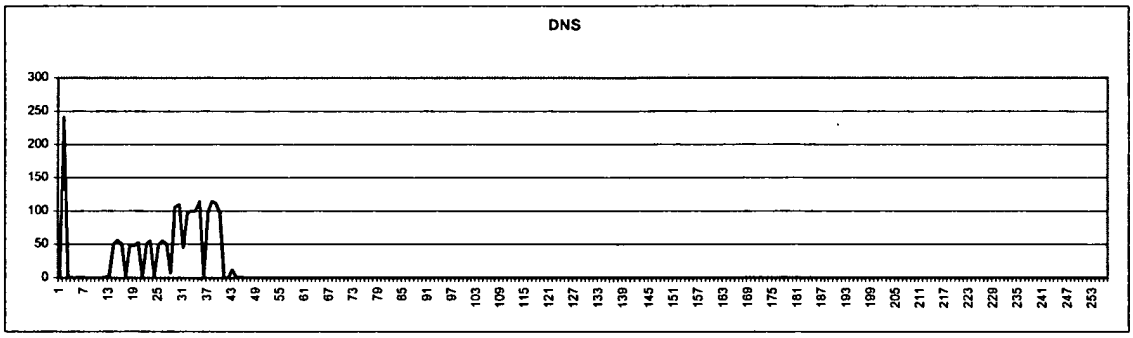

Figure 4B

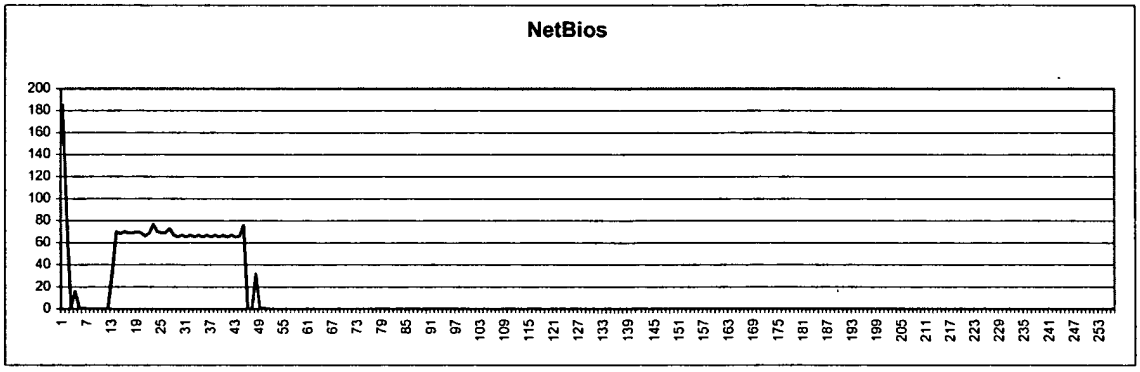

Figure 4C

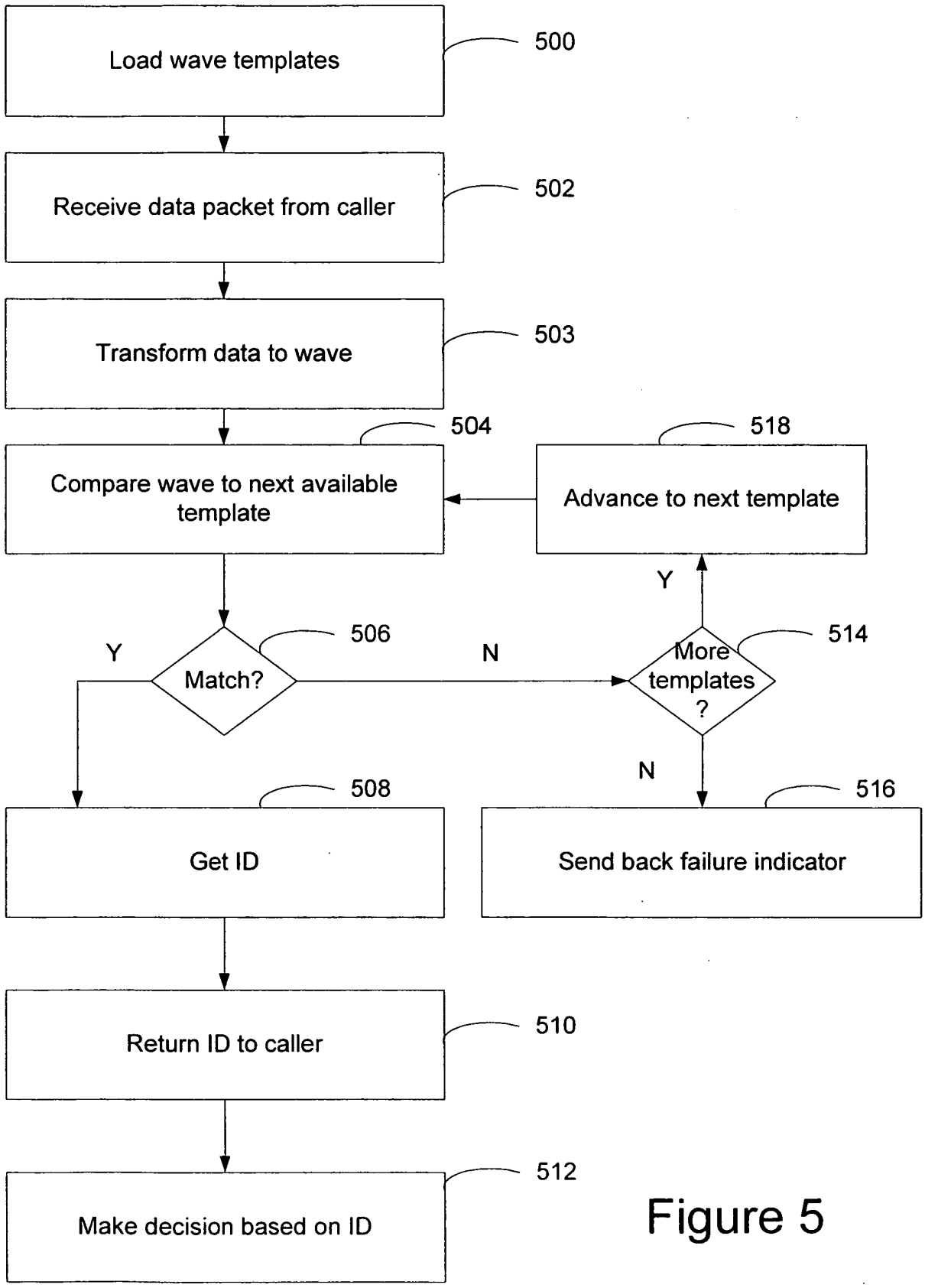
Load wave templates
500
Receive data packet from caller
502
Transform data to wave
503
Compare wave to next available template
504
Advance to next template
518
Y
Match?
506
Y
N
More templates ?
514
N
Get ID
508
Send back failure indicator
516
Return ID to caller
510
Make decision based on ID
512

Figure 5

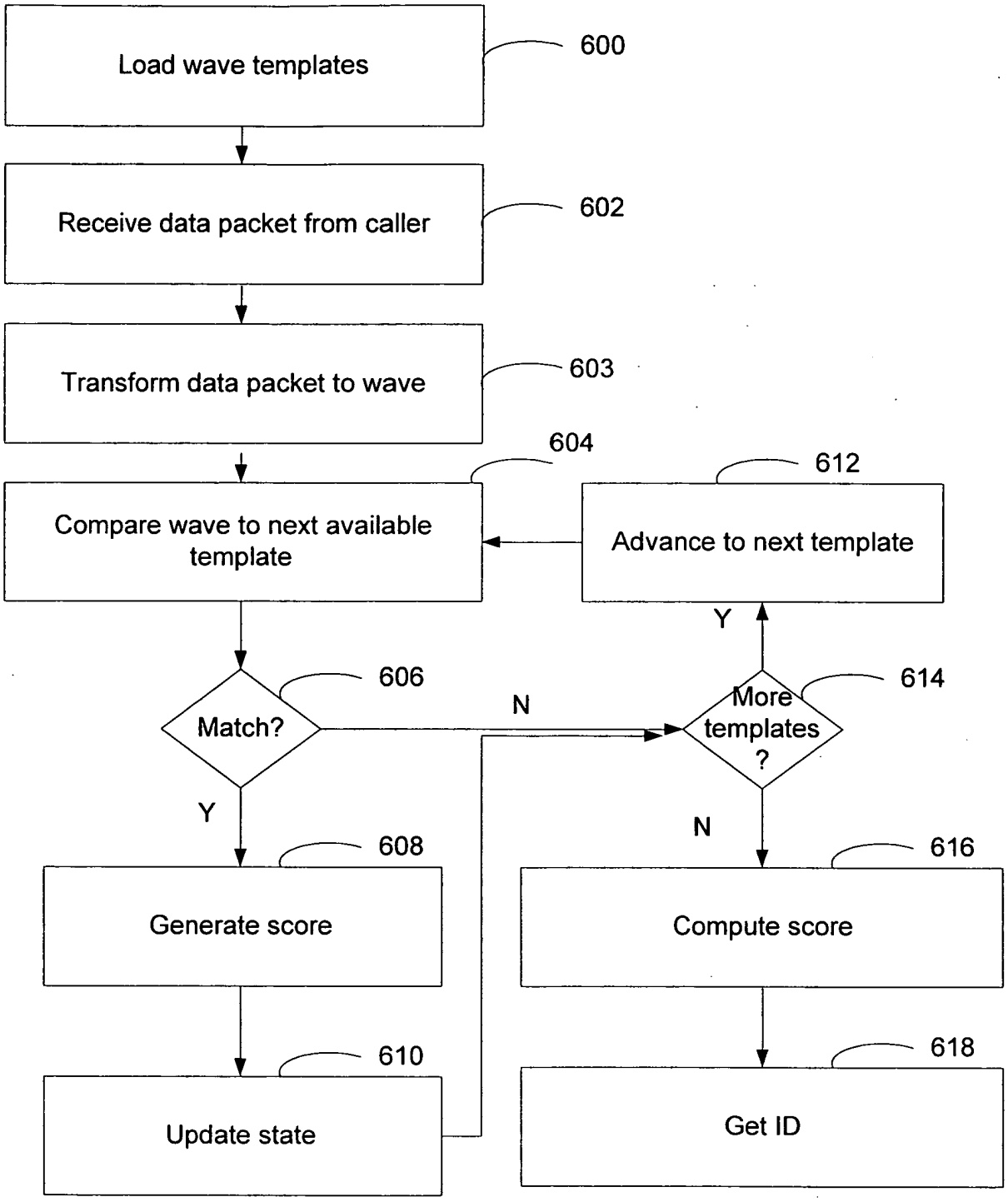
Load wave templates
600
Receive data packet from caller
602
Transform data packet to wave
603
604
Compare wave to next available template
612
Advance to next template
Y
606
Match?
N
614
More templates ?
Y
N
608
Generate score
616
Compute score
610
Update state
618
Get ID

Figure 6

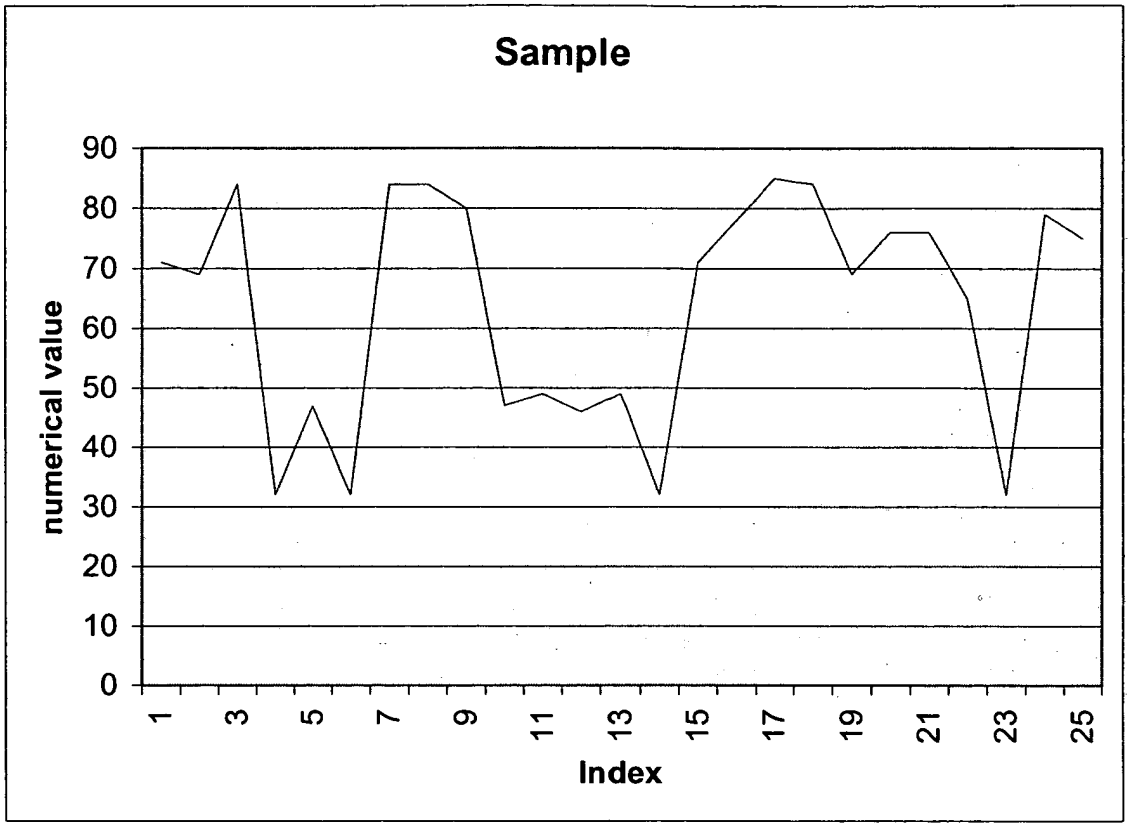
Sample
numerical value
90
80
70
60
50
40
30
20
10
0
1
3
5
7
9
11
13
15
17
19
21
23
25
Index

Figure 7A

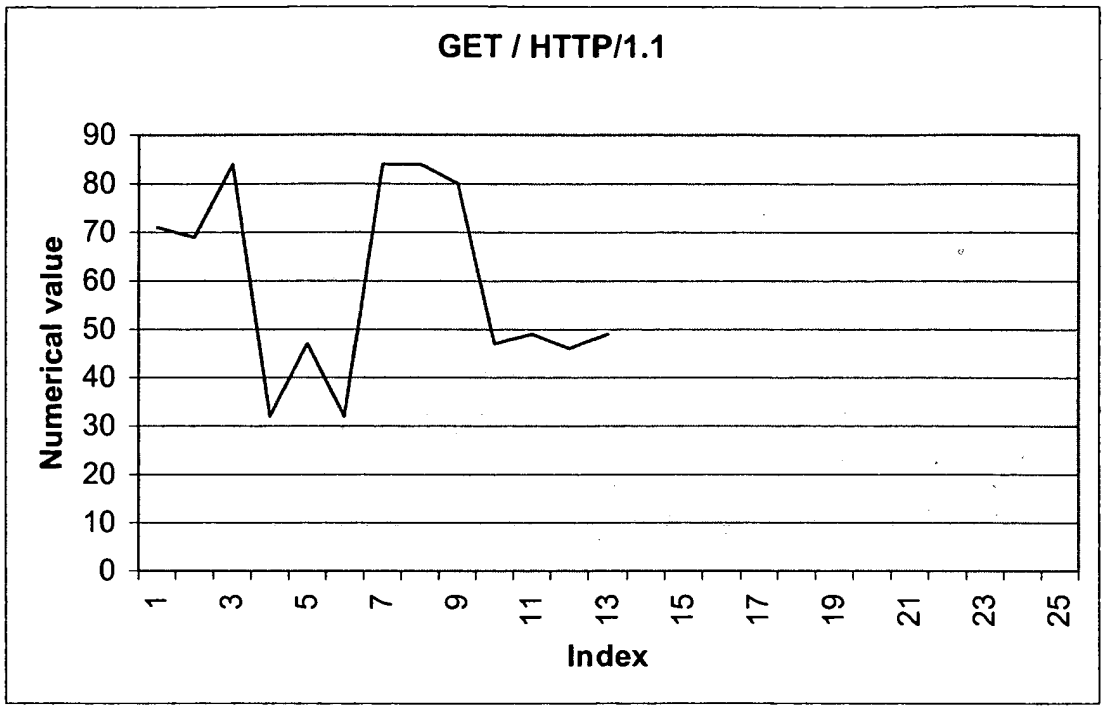

Figure 7B

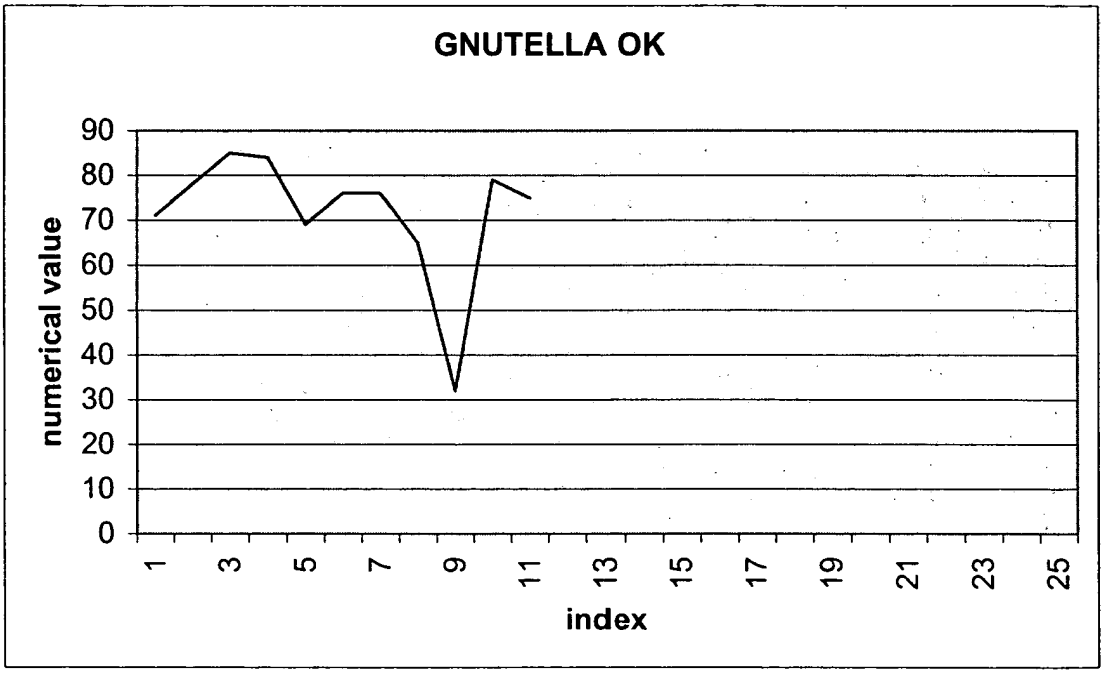

Figure 7C

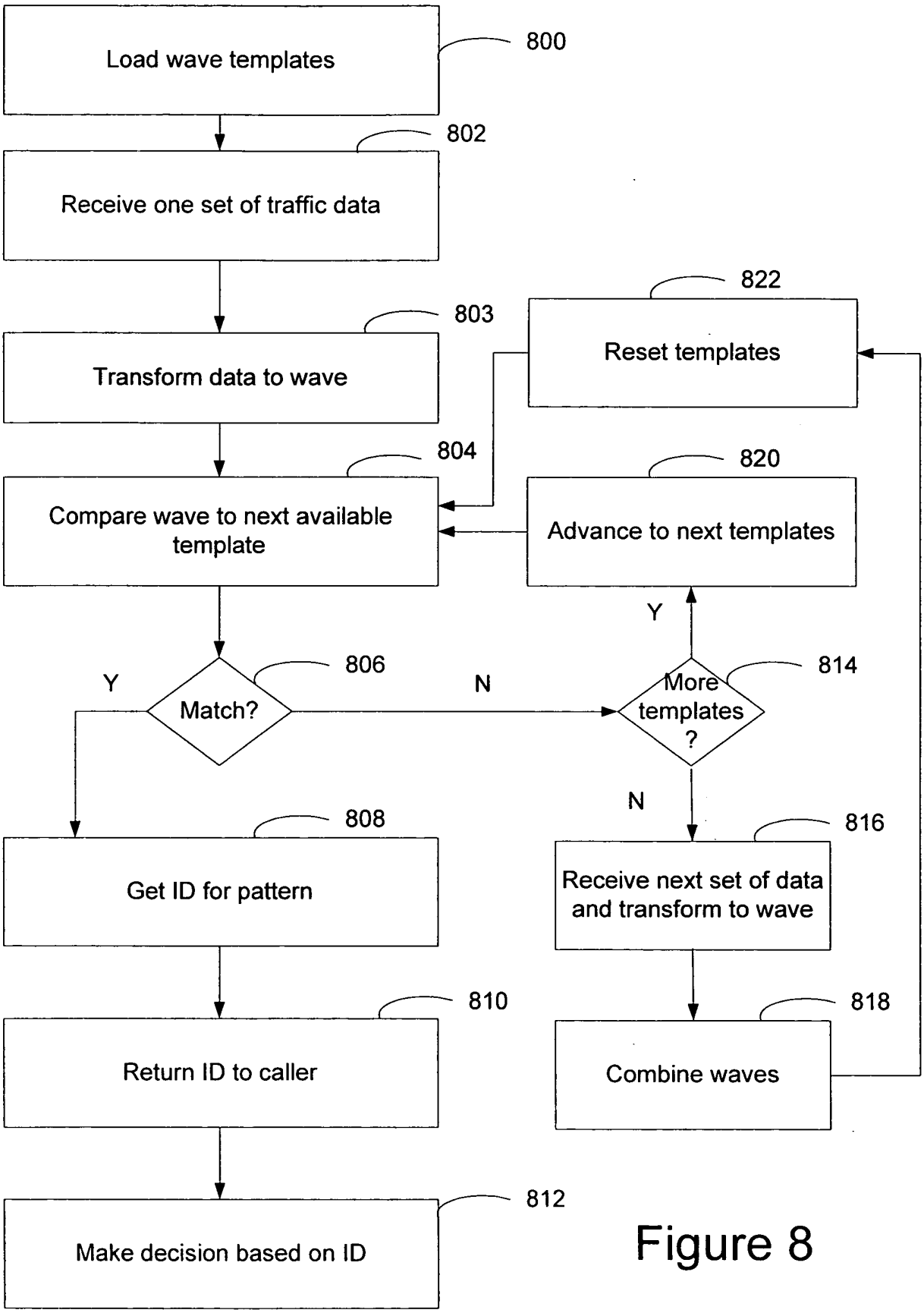
Load wave templates
800
Receive one set of traffic data
802
Transform data to wave
803
Compare wave to next available template
804
Match?
806
Y
N
Get ID for pattern
808
Return ID to caller
810
Make decision based on ID
812
More templates ?
814
Y
N
Advance to next templates
820
Reset templates
822
Receive next set of data and transform to wave
816
Combine waves
818

Figure 8